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February 6, 2013

BY ELECTRONIC DELIVERY

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street SW
Washington DC 20554

Re: Progeny LMS, LLC
Permitted Written *Ex Parte* Presentation
WT Docket No. 11-49

Dear Ms. Dortch:

Progeny LMS, LLC ("Progeny"), by its attorneys, herein responds to the *ex parte* letter that was submitted in this docket on January 28, 2013 regarding the Part 15 wireless headset devices manufactured by Plantronics.[1] Plantronics' January *ex parte* letter seeks to rebut the extensive test results demonstrating that Progeny's service does not cause unacceptable levels of interfere to Part 15 devices. The substance of each of Plantronics arguments appears based on the implicit assumption that Plantronics devices will contend with few if any other users in the band and that, absent Progeny's service, Plantronics devices should have access to the full 902-928 MHz band for high-density installations. Given the ubiquity of Part 15 devices as well as the operating requirements specified in the Part 15 rules, this assumption is not in keeping with the Commission's policy or with real world conditions. Nonetheless, Progeny addresses Plantronics' arguments below.

Progeny's Network Will Not Reduce the Spectrum Available for Part 15 Operations

As Progeny noted previously, Plantronics tested its wireless headsets not by operating its headsets in their actual operating manner (which includes automatic frequency selection

[1] *See* Letter from Steve Cahill, Principal RF Engineer, to Ms. Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 (Jan. 28, 2013) ("*Plantronics January Letter*").

capabilities), but by artificially restricting the devices so that they function only directly co-frequency with Progeny's beacon transmitters.[2] Although such test conditions are inherently contrived, Plantronics claims that they are relevant to "predict" performance for an ensemble of its units in a dense environment, such as a call center.[3] Plantronics further claims that the results of its tests support a prediction that "[i]n a multi-unit installation, at best a portion of the band available to such an ensemble of units would no longer be available (due to a high-duty-cycle interference received from the Progeny system that would be detected and avoided), reducing the available number of users served by such an ensemble."[4]

Leaving aside the question of whether such artificially structured tests are appropriate or reliable, Progeny disputes both the assumptions used by Plantronics and the conclusions that it reaches with respect to its "restricted agility" test methodology. Plantronics relies on two arguably incompatible assumptions about the manner in which wireless headsets are used in call centers and other very dense user environments.

Plantronics' first assumption is that, in any very dense call center, the wireless headsets that are being used could presumably take up every available channel in the 902-928 MHz band and, as a result, the addition of any RF noise from any external source, such as from Progeny's network or from a Part 15 device, would force Plantronics' devices off those noisy channels and on to other channels that are already being used by other Plantronics' headsets in the same facility, thus reducing the number of headsets that can use the 900 MHz band simultaneously.

In making this argument, Plantronics is assuming that any external transmissions (and particularly, RF transmissions from Progeny's network) will disrupt the operations of its headsets sufficiently that they will switch to another channel. This assumption is incorrect. As Progeny noted in its response, in large call centers, most of Plantronics' headsets will be used at individual work stations in relatively close proximity to their intended base stations.[5] In such conditions, the close proximity between the headset and its base station will yield a strong enough signal to maintain significant carrier to interference ("C/I") margins and essentially "block out" all external noise sources (including transmissions from Progeny's beacons) and, as a result, the headsets will continue to use every channel in the 902-928 MHz band, including those channels that are shared with Progeny's service. This outcome is reflected in Plantronics' test results, which show that the signals from Progeny's position location service will not be

[2] *See* Response of Progeny LMS, LLC, *The Wireless Telecommunications Bureau and the Office of Engineering and Technology Seek Comment on Progeny's Joint M-LMS Field Testing Reports*, *WT Docket No. 11-49* at 51 (Jan. 11, 2013) ("*Progeny January Response*").

[3] *Plantronics January Letter* at 2.

[4] *Id.*

[5] *Progeny January Response* at 53.

detected by Plantronics' headsets unless the headsets are separated from their intended base stations.[6]

This brings us to the second assumption that forms the basis of Plantronics' argument – Plantronics assumes that all of the wireless headsets that are being used in a call center need to be capable of operating at a significant distance from their intended base stations and, importantly, all at the same time. As Plantronics explains "[u]sers care very much about range, even in density installations. Being able to get to facilities like a conference room, a phone room, or comfort stations, is a factor."[7]

Progeny is not disputing the fact that users of wireless headsets need to be able to leave their work stations and continue to use their headsets while in other parts of the building (although hopefully not while in comfort stations). Progeny questions, however, whether all or even most of the employees in a call center will normally leave their work stations and continue to use their headsets in other parts of the building *all at the same time*.

Common sense suggests that, in any large call center, only a small percentage of wireless headset users will be away from their desks concurrently. Those wireless headsets that are used by people who are away from their desks will automatically switch to a quiet channel in the 902-928 MHz band. In the event that the new channel is already being used by a deskbound wireless headset, the deskbound wireless headset will switch to another channel, including a channel that is co-frequency with Progeny's service because the deskbound headset will be unable to detect the signal from Progeny's service. As a result, even in a call center that is directly adjacent to a Progeny transmitter, the call center will still be able to operate headsets on every channel in the 902-928 MHz band and will not sacrifice any of its density or capacity.

Plantronics does not contradict the essential fact that when call center employees are working, most of them are at their desks and relatively near the headset base station. Plantronics, however, questions Progeny's qualifications for noting these facts, arguing that "Progeny does not claim to have experience in the wireless headset business"[8] and does not run call centers as a component of its business. Progeny's management team members, however, have been responsible for large call center operations in past careers. This experience, and common sense, is consistent with Progeny's observations that most workers in a call center are deskbound, and close to their phone equipment.

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[6] *See* Letter from Steve Cahill, Principal RF Engineer, to Ms. Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 11-49 at 6 (Dec. 20, 2012) ("*Plantronics December Letter*").

[7] *Plantronics January Letter* at 4.

[8] *Id.*

Plantronics Devices Will Function both Within and Outside of 20 Feet from the Base Station

Plantronics also includes discussion regarding the specific distance from the base station at which Plantronics headsets will begin to detect Progeny's beacons and, as a result, automatically switch to another available channel. Plantronics emphasizes that Progeny's system "would begin to impact audio quality and the optimizability of channel selection and user-density at headset-to-base range of *less than* 20 feet."[9] As discussed above, Plantronics devices within close proximity (*i.e.*, less than 20 feet) of their associated base station will have more than sufficient margin to operate normally across all frequencies, including on the frequencies that are used by Progeny.

In order for Plantronics to reach its conclusion that its headsets would detect Progeny's signal at a distance of less than 20 feet, Plantronics tested its equipment at a location very near a Progeny beacon, resulting in a reported signal strength of about -55 dBm.[10] Plantronics indicates that its headsets require a 13 dB C/I ratio in order to function properly.[11] Therefore, Plantronics equipment would need to operate at a signal strength of at least -42 dBm to function in the presence of a closely located Progeny beacon.

Using the operating conditions noted in the Plantronics filing and assuming a path loss exponent of 3.0 (appropriate for indoor propagation), the separation distance between a Plantronics headset and its base station for interference-free operation would be 8 meters, or slightly more than 26 feet. Shorter distances between the headset and the base station would increase the margin significantly. For example, at 4 meters of separation, the power would be -33 dBm, yielding an additional 9 dB of margin. If the distance were further reduced to 2 meters, a typical distance for a worker at a desk, the power would increase to -24 dBm, yielding another 9 dB of margin and increasing the total margin to 18 dB.

The level of signal margin would also increase as the distance between the call center and the nearest Progeny beacon increased. As a result, in most urban-based user conditions (with the closest Progeny beacon several miles away), the wireless headset would be unable to detect Progeny's signal even when the headset is used at a significant distance from its desired base station. Therefore, Plantronics' tests and calculations reaffirm the fact that Plantronics' wireless headsets will not detect Progeny's service in most operating conditions and will seek to avoid Progeny's service by switching to another channel only when the headset and its base station are separated by a significant distance and only when the call center is very close to a Progeny beacon transmitter. Even in these unlikely circumstances, the headsets will still be able to use all

[9] *Id*. at 2 (emphasis added).

[10] *See Plantronics December Letter* at 4.

[11] *Plantronics January Letter* at 5.

of the channel capacity in the 902-928 MHz band without degradation and the total number of headsets that can be used in the call center will not decrease.

Progeny's Network Will Not Cause Overload to Plantronics Devices

Plantronics concludes by asserting arguments pertaining to the potential for overload of Plantronics devices by signals from Progeny beacons. Progeny has addressed this assertion at length in previous pleadings and explained that overload will not occur under real world operating conditions.[12] Plantronics argues that undesired signal levels in excess of -35 dBm transmitted anywhere in the 902-928 MHz band will block desired signals unless the desired signal levels are stronger than -50 dBm. Plantronics further claims that, as a result, "voice dropouts due to blocking will occur for base-to-headset distances of less than 20 feet unless the Progeny-to-susceptor path loss is greater than 80dB, for all channels in the band, not just those used by the Progeny 30W transmitters."[13]

This argument is essentially identical to the argument asserted in RKF Engineering's "Analysis of Progeny Part 15 Test Report" which Itron included in its March 15, 2012 comments.[14] Progeny summarizes its response here for convenience. The speculative calculations presented in the RKF analysis and in Plantronics' letter have not been borne out in nearly three years of operation of the Progeny test network in Santa Clara County, more than six months of operation in 38 additional economic areas, and more than 18 months of intensive testing. Therefore, Progeny strongly disputes whether these conditions do or could exist under real world conditions. Using a 2.8 path loss exponent (which is conservative for elevated outdoor urban transmitters), the distance from a Progeny beacon where the signal strength could reach -35 dBm is 50 meters. This distance does not account for signal strength losses from building penetration. Assuming even a minimum building attenuation of 20 dB for an urban structure reduces the distance where a -35 dBm signal could exist to 10 meters from the beacon, significantly less than the width of an urban street. Therefore, even under worst case conditions where the call center was located on the upper floor of a building adjacent to a Progeny transmitter, the overload postulated by RKF and repeated by Plantronics simply could not occur.

[12] *See Progeny January Response* at 50; *see also* Response of Progeny LMS, LLC, *The Wireless Telecommunications Bureau and the Office of Engineering and Technology Seek Comment on Progeny's Joint M-LMS Field Testing Reports*, WT Docket No. 11-49 at 12-13 (Mar. 30, 2012).

[13] *Plantronics January Letter* at 5.

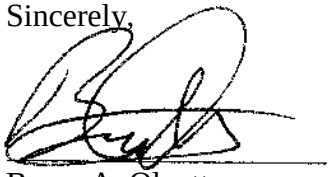
[14] *See Analysis of Progeny Part 15 Test Report, RKF Engineering*, WT Docket No. 11-49, at 10 (March 15, 2012) ("*RKF Paper*").

Conclusion

The record in this proceeding clearly demonstrates that Progeny's position location network will not inhibit or degrade the operation of Plantronics' Part 15 devices. The Commission should therefore promptly conclude that Progeny has satisfied its obligation to demonstrate that its network will not cause unacceptable levels of interference to Part 15 devices.

Thank you for your attention to this matter. Please contact the undersigned if you have any questions.

Sincerely,



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